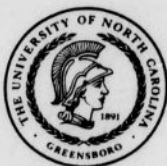


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Before fibers are mechanically spun into yarn, they are formed into a soft rope, or sliver, and then drawn into a thinner strand called roving. The purpose of this study was to explore ways that sliver and roving could be used in the creation of original wall hangings.

Literature was searched for information about the use of sliver and roving, or unspun fibers in general, in wall hangings. Books and periodicals referred to a few craftsmen who had used unspun fibers; but these craftsmen had rarely employed the fibers as the primary material in a hanging. No literature could be found dealing specifically with the use of unspun fibers in wall hangings. In addition, visits to craft shows and weaving exhibits indicated that area craftsmen used little sliver and roving in their hangings.

To discover ways that sliver and roving could be used more fully, fibers with different characteristics were obtained: cotton, flax, wool, yak hair, and polypropylene. Traditional techniques of weaving, knotting, braiding, and wrapping were tried, and some techniques developed to take advantage of particular qualities of the fibers. These explorations led to the creation of nine wall hangings from sliver and roving.

A description of each hanging is given, including materials and techniques employed, and information obtained from working with the particular fibers. Color photographs illustrate the finished hangings, techniques developed, and textures achieved with sliver and roving.

FIBERS IN SLIVER AND ROVING FORM FOR WALL HANGINGS

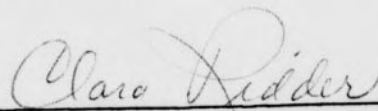
by

Sharron Bailey Parker

A Thesis Submitted to
the Faculty of the Graduate School at
The University of North Carolina at Greensboro
in Partial Fulfillment
of the Requirements for the Degree
Master of Science

Greensboro
1974

Approved by



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ACKNOWLEDGMENTS

The author would like to express her appreciation to her thesis advisor, Dr. Clara Ridder, Professor in Home Economics, for her advice and guidance given so generously throughout this study.

Appreciation is extended also to Dr. Frances Buchanan and Dr. Mary Miller of the Home Economics Department for serving on this thesis committee and for their guidance during this study.

TABLE OF CONTENTS

	PAGE
List of Figures	v
CHAPTER	
I. INTRODUCTION AND PURPOSE	1
Definition of Terms Used	2
II. REVIEW OF LITERATURE	4
III. NORTH CAROLINA WEAVERS WHO HAVE USED	
UNSPUN FIBERS IN WALL HANGINGS	6
IV. PROCEDURE	7
V. RESULTS: WALL HANGINGS FROM SLIVER AND ROVING . .	9
Plant Fibers	9
Cotton: "Cloak"	9
Flax: "Tree Bark"	12
Flax: "Wild Man"	16
Animal Fibers	20
Wool: "Blue Moon"	20
Wool: "Untitled"	23
Wool: "Graybeard"	26
Yak Hair: "Shadow"	26
Synthetic Fibers	31
Polypropylene: "Untitled"	31
Polypropylene: "Black and White"	34
VI. SUMMARY AND CONCLUSIONS	41
SELECTED BIBLIOGRAPHY	43
CRAFT SHOWS AND WEAVING EXHIBITS ATTENDED	45

LIST OF FIGURES

FIGURE	PAGE
1. Macrame Knots: Overhand, Half, Square, Half Hitch, Clove Hitch	10
2. Network of Sliver Knots	11
3. Sliver Tied on with Half Knots	13
4. "Cloak"	14
5. Detail of "Cloak"	15
6. Polypropylene Roving Crimped with Heat	17
7. "Tree Bark"	18
8. Detail of "Tree Bark".	19
9. "Wild Man"	21
10. Detail of "Wild Man"	22
11. "Blue Moon".	24
12. Detail of "Blue Moon".	25
13. "Untitled, #1".	27
14. Detail of "Untitled, #1".	28
15. "Graybeard"	29
16. Detail of "Graybeard"	30
17. "Shadow"	32

LIST OF FIGURES (Continued)

FIGURE	PAGE
18. Detail of "Shadow"	33
19. "Untitled, #2"	35
20. Detail of "Untitled, #2"	36
21. Modified Rya Knots	38
22. "Black and White"	39
23. Detail of "Black and White"	40

CHAPTER I

INTRODUCTION AND PURPOSE

For centuries yarn, a continuous strand made from fibers by a process of spinning, has been the traditional material for wall hangings and other textiles. Unspun fibers have been used only to a limited extent, chiefly for utilitarian articles. Weavers of Dumbari, an island near India, have used unspun hemp as weft material in their mats (20:34). Morrocans have used felted roving for blankets (22:155) and Ecuador Indians have knotted unspun wool for rugs (21:34).

In North America, the Northwest Coast Indians wrapped mountain-goat wool around cedar bark for use in both clothing and blankets (24:620), (15:129). Much later, the founder of Penland, a craft school in North Carolina, used rug roving for bags (16:46). Also, a Colorado weaver made rugs from unspun fleece, candlewick, and wool yarn (11:15).

Only recently have unspun fibers also been used for wall hangings, along with branches, shells, plastics, and other new materials. In experimenting with many such materials, few weavers have had the opportunity to examine the range of possibilities unspun fibers offer. Yet fibers in sliver and roving form have unique qualities; if used to a greater extent, the fibers could enhance the forms and textures of contemporary hangings. The purpose of this study, therefore, was to explore ways that sliver and roving could be used as

the principal material in original wall hangings.

DEFINITION OF TERMS USED

Sliver - a soft, rope-like strand of fibers which have gone through the carding and sometimes the combing processes in a spinning mill (5:92-3).

Roving - a soft, slightly twisted continuous strand of fibers produced from sliver (and comparable in size to a thin pencil), from which yarn is spun (5:94).

Note: In common usage, the terms "sliver" and "roving" are not distinct. A supplier of unspun fibers to handspinners says:

Technically, sliver is fatter, fluffier than roving which may be slightly twisted, and is a step closer to spinning than sliver. Among handspinners and some industries, the terms are used casually and interchangeably which sometimes leads to confusion. All rovings are not necessarily the same thickness but may vary from mill to mill and batch to batch (14:1-2).

To avoid confusion over terms, weaving and spinning suppliers will provide samples of the types of unspun fibers they have available.

Ends - individual lengths of warp yarns (25:94).

Felt - to mat wool fibers together with heat and agitation (5:116).

Macrame - the interknotting of yarns (17:5).

Pick - a single passage of weft material through the warp ends (25:94).

Plain weave - the simplest order of interlacing: the weft goes under, over, under, over the warp, reversing the order on the next row (9:7).

Rya knot - a knot where yarn is wound around two warp ends and then pulled up

between them (25:64).

Sennits - lengths of tied knots (9:32), or braided cordage (17:17).

Tapestry loom - a loom similar to the frame loom, except that it stands upright with the warp in a vertical position (9:5).

Tapestry weave - plain weave which has been beaten down so that the weft completely covers the warp (25:71).

Warp - the lengthwise yarns, held taut by the loom, through which the weft is woven (9:7).

Weft - the crosswise yarns, woven into the warp (9:7) through a process of interlacing.

CHAPTER II

REVIEW OF LITERATURE

In the past wall hangings were woven of yarn; no references to unspun fibers was found in histories of tapestry weaving. However, in recent years weavers have shown an increased interest in the use of unspun fibers as well as a variety of other materials. Recent books and periodicals contained references to a few craftsmen who had used unspun fibers in wall hangings.

Perhaps one of the earliest weavers to use such fibers was Dominic DiMare. In 1965 he displayed a hanging which had unspun wool masses woven into the center (4:52). Then in 1967 Glen Kaufman exhibited his "Autumn Rivers" tapestry of unspun wool, created with an inlay technique (2:31). Else Regensteiner also used unspun wool as one of the materials in her "Wall Hanging with Sea Stars" (18:94), and Josep Grau-Garriga used some combed jute in hangings at a 1973 gallery exhibit (10:20).

Other weavers who have used unspun fibers, according to literature, are: Candace Crockett, in her "Landscape" (13:45); Sandi Schmidt, in a hanging made of branches, unspun wool, and other materials (8:56); and Susan Weitzman, in her "Tapestry for Frances Lynn" (7:24). In addition, Myriam Gilby of England used unspun wool, yarns, and horsehair in her hanging called "Contrasts," and Tadek Beutlich of Poland used spun and unspun wool, jute, and hemp in her hanging "Sun over the Waves" (19:67).

Although literature contained references to a few weavers who had used unspun fibers, no references were found discussing how sliver and roving could be handled. Unspun fibers were only mentioned as one of many possible weft materials (23:100) or macrame materials (17:11).

CHAPTER III
NORTH CAROLINA WEAVERS WHO HAVE USED
UNSPUN FIBERS IN WALL HANGINGS

Of the hundreds of wall hangings which were seen at eleven North Carolina craft shows and weaving exhibits, only a few contained unspun fibers. Silvia Heyden's "Golden Fleece" tapestry had pieces of fleece woven into the background of linen and wool yarn, in an exhibit at Duke University (I). Melissa Garfinkel had used fur, unspun fibers, and yarn in her work at an exhibit in Winston-Salem (B). Lorraine Force of Boone, North Carolina used some unspun fibers in a hanging for a "Poems and Fibers" exhibition (H).

Also, Daphne Cruze and Glenda Greeson exhibited hangings in Chapel Hill which contained a small amount of sliver (D); and Phyllis Cullison and Barbara Grenell used small amounts in hangings at the Piedmont Craftsmen's Fair (K). In Greensboro, Susan Angell showed a hanging which contained unspun wool and wool yarn (E).

However, none of the hangings seen was constructed entirely or even predominantly of unspun fibers. In the few instances where sliver and roving were used, they were most often inserted into the warp of the hanging rather than being handled in a variety of ways.

CHAPTER IV

PROCEDURE

Artists or craftsmen traditionally explore the use of new techniques or materials in a less formal manner than scientists. Often it is while using a material or developing a design that a technique or method of handling material will suggest itself. However, during this study, an effort was made to keep a record of how the sliver and roving were handled and used successfully so that other craftsmen could adopt the methods if desired.

To learn to what extent unspun fibers had been used in wall hangings, the literature was searched. In addition, various craft shows and weaving exhibits in North Carolina were visited to observe the extent to which the exhibitors had used unspun fibers.

Different kinds of fibers in sliver and roving form were then obtained: cotton, flax, wool, yak hair, and polypropylene (olefin). From these fibers original wall hangings were created, through the use of traditional weaving, knotting, braiding, and wrapping techniques. Also, some techniques were developed to take advantage of particular qualities of the fibers.

A description of each hanging was written, including the materials used, ways the fibers were handled, and observations about the different fibers. Color photographs were taken of the completed wall hangings, the techniques developed, and the textures created with the sliver and roving. The wall hangings were

then categorized according to the source and generic name of the fibers employed.

CHAPTER V

RESULTS: WALL HANGINGS FROM SLIVER AND ROVING

PLANT FIBERS

Cotton: "Cloak"

Materials: Cotton sliver
Cotton/polyester roving
Nylon yarn
Metal rod

Preparation of Materials: The roving was dampened with water.

Handling of Fibers:

1. Strands of dampened roving were combined and tied onto the metal rod.
2. Some of the multiple strands were tied at intervals of $1/2''$ to $1\ 1/2''$ with overhand knots (see Figure 1); the rest were braided with a three-ply technique.
3. The knotted and braided lengths, or sinnets, were then removed from the rod and dyed.
4. Lengths of nylon yarn were tied to the rod.
5. Cotton sliver torn into 5" pieces was tied onto adjacent yarns to form a row of knots.
6. Additional rows of knots were started on alternate yarns, creating a network of knots (Figure 2) which was consolidated to cover the yarn.
7. When the desired number of rows was finished, the yarns were gathered into

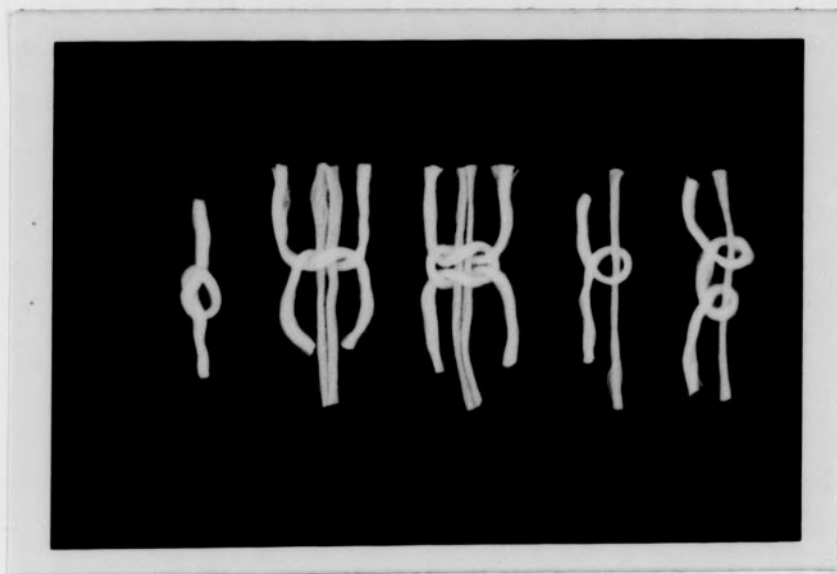


Figure 1

Macrame Knots: Overhand, Half, Square, Half Hitch, Clove Hitch



Figure 2

Network of Sliver Knots

small groups and covered by pieces of sliver tied on with half knots (Figure 3).

8. The roving sinnets were then re-tied onto the rod.

Findings:

1. Dampening sliver and roving causes the fibers to adhere so that they have greater strength and do not fray as easily. Cotton sliver, however, does not regain its original bulk after being handled wet, so for maximum fluffiness it should be left dry.
2. Braiding cotton roving, or knotting it at closely-spaced intervals, greatly strengthens it; sinnets in this hanging cannot be torn by hand. Consequently cotton roving in sinnet form can be dyed without special care.

Flax: "Tree Bark"

Materials: Russian coarse flax sliver
Belgian flax sliver
Linen rug warp
Cotton sliver
Polypropylene roving
Yak hair sliver
Sticks (2)

Preparation of Materials: The polypropylene roving was dyed and crimped with heat (see Findings).

Handling of Fibers:

1. The sticks were tied to a tapestry loom and the linen rug warp wrapped around them. Masking tape was used to maintain the spacing of the warp yarns on the sticks.



Figure 3

Sliver Tied on with Half Knots



Figure 4

"Cloak"

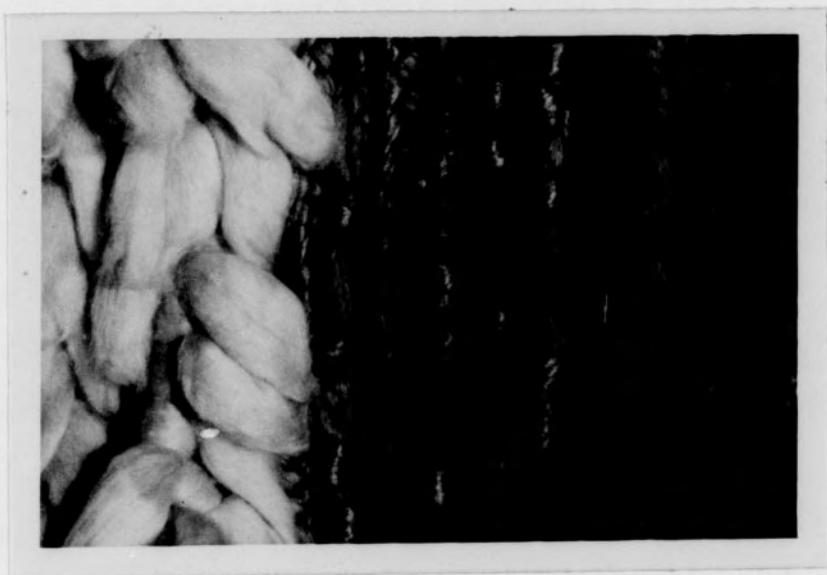


Figure 5
Detail of "Cloak"

2. The flax sliver and other weft materials were woven in with a combination of plain and tapestry weave techniques.
3. Where a raised surface was desired, the weft material was wrapped around the warp yarn.
4. After the weaving was completed, the tape anchoring the warp yarns was removed.

Findings:

1. When polypropylene roving is held over a heat source, the side nearest the heat shrinks, due to its low melting point; this shrinking makes the roving wave and curl (Figure 6), and gives it new textural possibilities.
2. Unlike most kinds of sliver, coarse flax is strong; the Russian flax used here could not be torn by hand. Thus it can be used alone, or to reinforce other fibers.
3. With sliver and roving of such different thicknesses being woven in vertically, warp tension becomes uneven; wrapping the thinner weft fibers around the warp yarns adds thickness and helps equalize the warp tension.

Flax: "Wild Man"

Materials: Russian coarse flax sliver
 Belgian flax sliver
 Jute cord
 Bamboo pieces (2)

Preparation of Materials: none.

Handling of Fibers:

1. The jute cord was tied onto the bamboo and knotted in areas with square

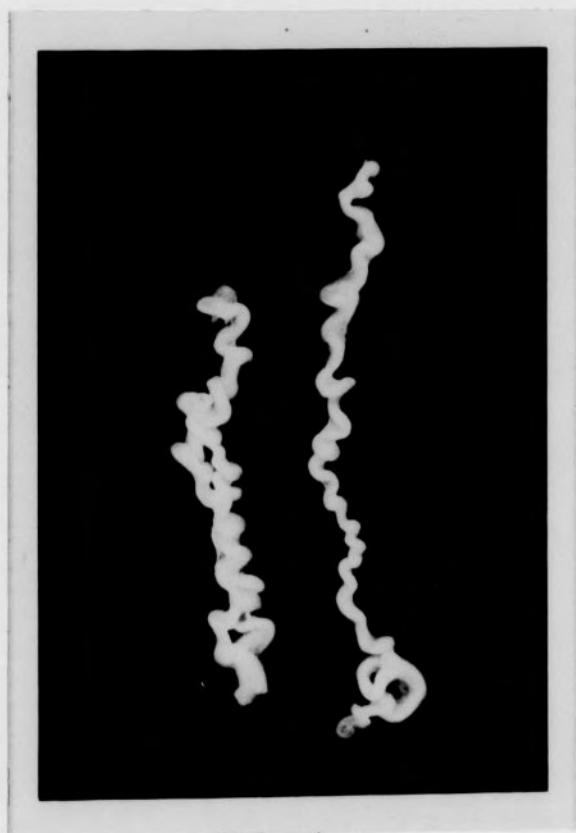


Figure 6

Polypropylene Roving Crimped with Heat

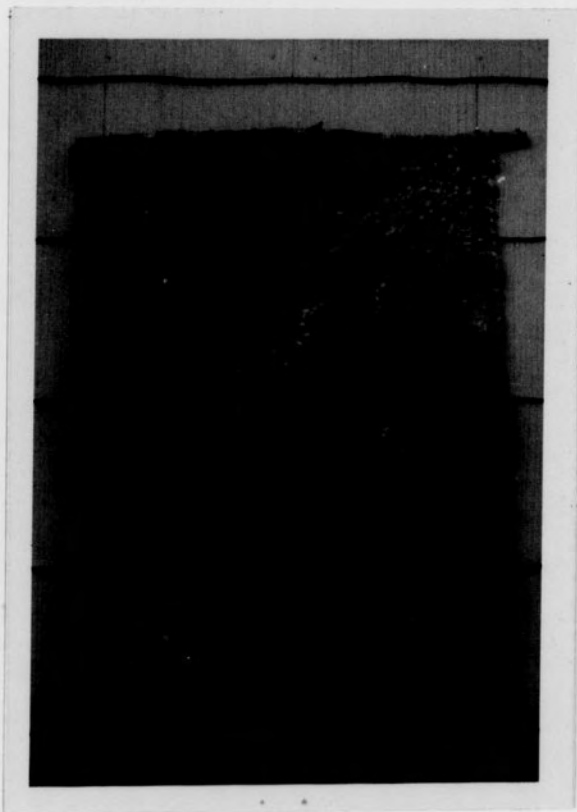


Figure 7

"Tree Bark"



Figure 8
Detail of "Tree Bark"

knots and clove hitches (see Figure 1).

2. Flax sliver was wrapped around the unknotted areas of cord, and additional pieces of sliver were tied over the wrapping.
3. Lengths of Russian flax sliver were then wrapped with the Belgian flax, and the ends twisted into points.
4. These wrapped pieces of sliver were tied onto the hanging, and the cord ends covered with pieces of sliver.

Findings:

1. Flax sliver holds a twist well, so that ends of fibers, such as the wrapped lengths in the hanging, can be given a point.

ANIMAL FIBERS

Wool: "Blue Moon"

Materials: Wool sliver
Wood picture frame

Preparation of Materials: The wool sliver was dyed and felted.

Handling of Fibers:

1. Some of the sliver was tacked to the inside of the frame vertically to form a warp.
2. Other lengths of sliver were woven into areas of the warp with a plain weave.
3. Additional lengths were wrapped with sliver or twisted until they kinked and curled; these lengths were also incorporated into the hanging.



Figure 9

"Wild Man"



Figure 10
Details of "Wild Man"

Findings:

1. Wool sliver frays and tears easily; felting makes it more compact and much stronger. The heat and agitation of dyeing can be used to felt the sliver. Dyeing the sliver in bags of thin material, such as stocking nylon, will protect it until felting occurs.

Wool: "Untitled"

Materials: Wool roving
Warp yarn

Preparation of Materials: The wool roving was dyed and felted slightly.

Handling of Fibers:

1. A tapestry loom was warped with the yarn.
2. Doubled pieces of roving were inserted into sections of the warp with a tapestry weave; the roving weft ends were left hanging on both sides of the woven sections.
3. The weft ends were then gathered into groups and knotted with a series of half knots (see Figure 1) to create sinnets.
4. At random intervals sinnets were divided or joined, and knotting was continued.
5. The hanging was cut from the loom, and lower warp ends were tied together.
6. Next the upper warp ends were tied together and covered with roving anchored in place by half hitch knots (see Figure 1).
7. The finished hanging was then dyed, and the wool allowed to felt completely.

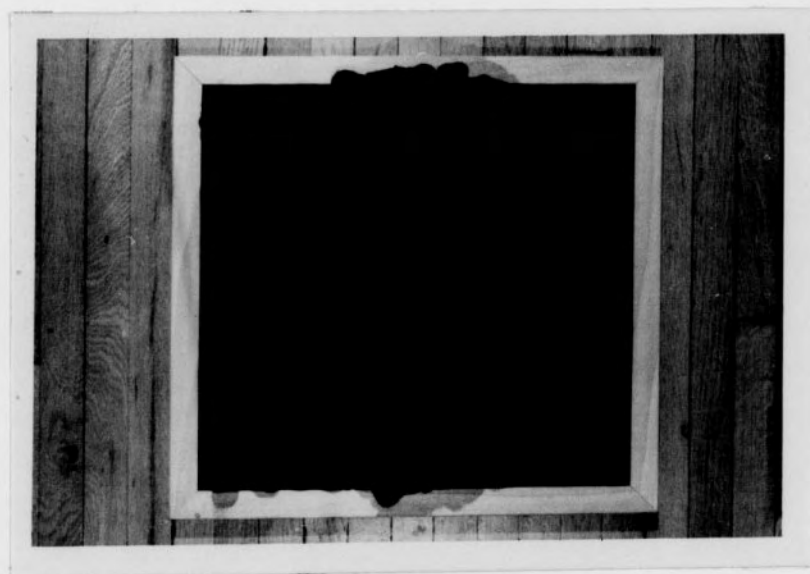


Figure 11

"Blue Moon"

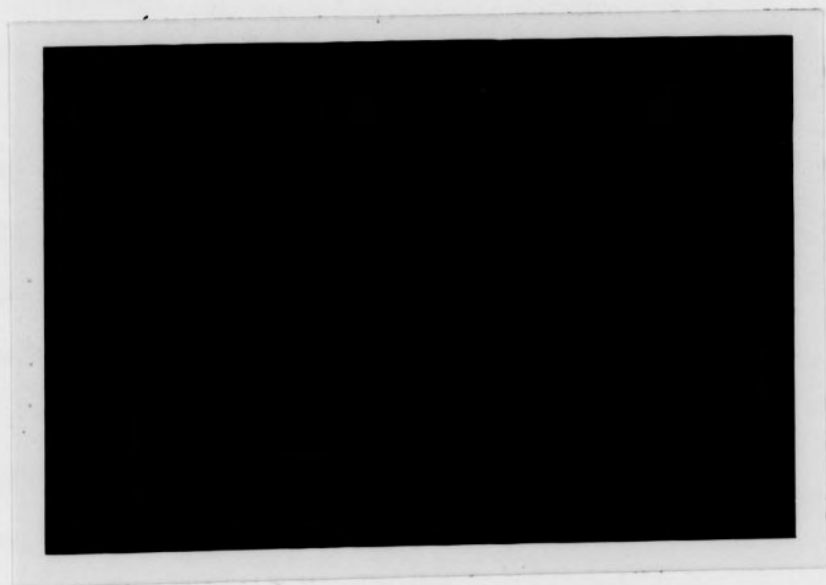


Figure 12
Detail of "Blue Moon"

Findings:

1. Strands of wool roving blend together very well, especially if they are felted together after being woven or knotted; in this way the texture of individual strands becomes subordinated to the textures of the finished hanging.

Wool: "Graybeard"

Materials: Wool roving
Leather
Metal rod

Preparation of Materials: The wool roving was dyed on a spool and allowed to felt slightly.

Handling of Fibers:

1. The area of leather to serve as warp was cut into strips.
2. A number of roving strands were gathered together and woven through the leather strips; the ends of the strands were left hanging.
3. The leather was stitched onto a metal rod.

Findings:

1. Gradual variations of color can be achieved by dyeing roving on a spool; this method also prevents tearing and fraying of the fibers.

Yak Hair: "Shadow"

Materials: Yak hair sliver
Wood rods (2)
Wire

Preparation of Materials: none.

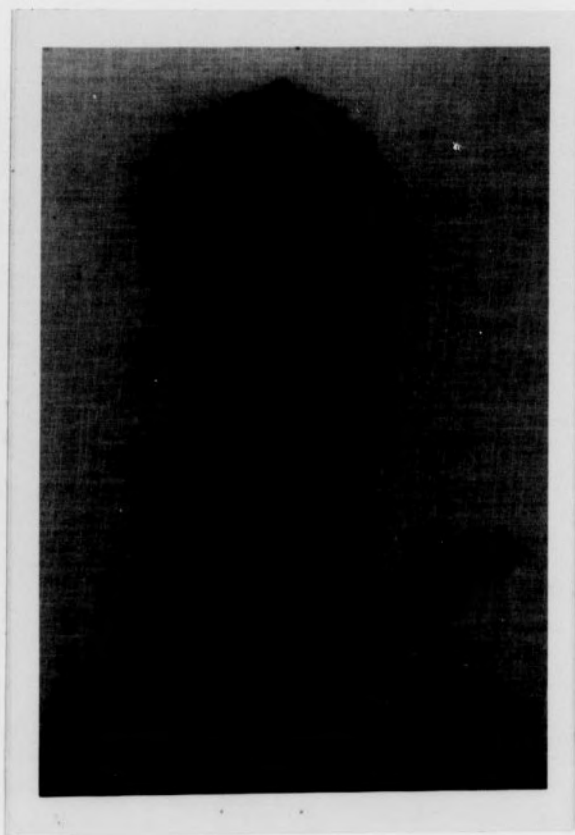


Figure 13

"Untitled, #1"

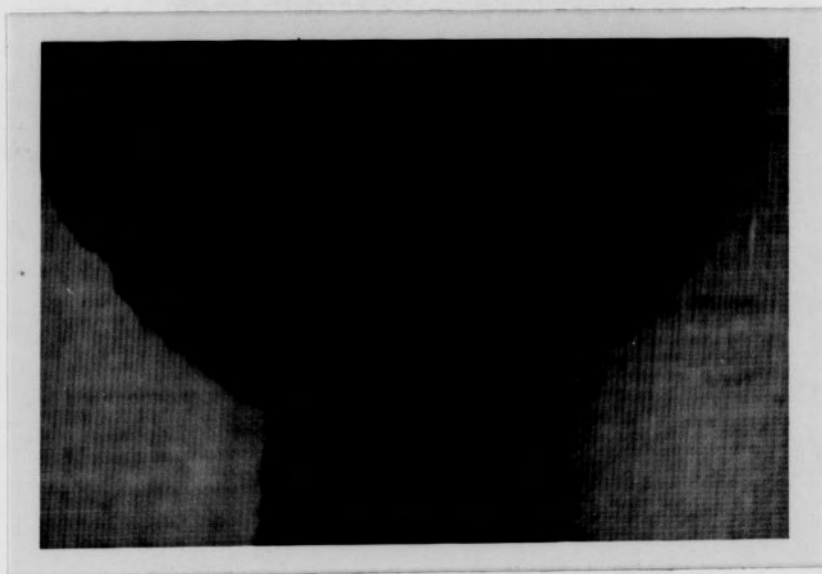


Figure 14

Detail of "Untitled, #1"

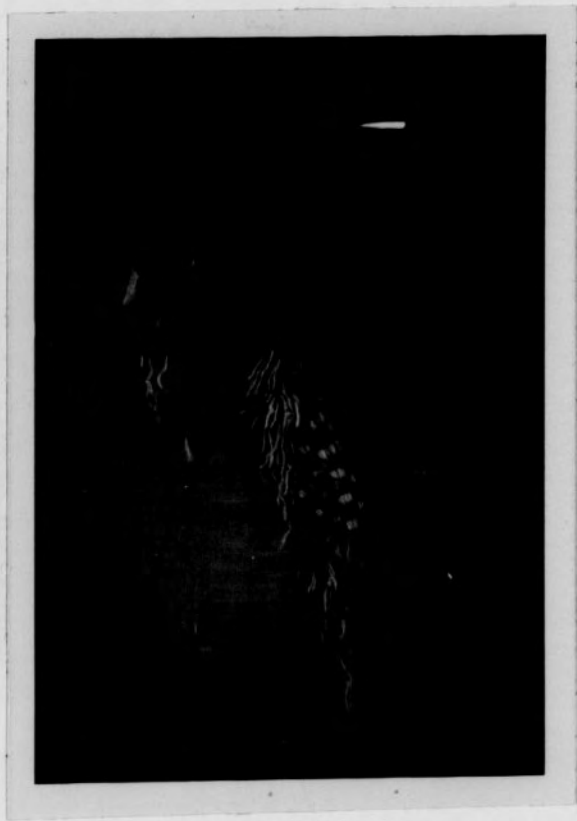


Figure 15
"Graybeard"



Figure 16

Detail of "Graybeard"

Handling of Fibers:

1. Lengths of yak hair sliver were tied to a rod. These lengths were then tied with series of square knots to form sinnets.
2. The sinnets were joined and divided to create the hanging's shape.
3. A short piece of wire was inserted into the upper part of the hanging to give it a curve.
4. The second rod was tied onto the bottom of the hanging.

Findings:

1. To keep yak hair sliver from shedding and tearing, lengths only a few feet long should be used.
2. Additional pieces of sliver can be worked into the hanging easily because torn sliver ends blend together well.

SYNTHETIC FIBERS

Polypropylene: "Untitled"

Materials: Polypropylene (olefin) sliver
Latigo (leather) lace
Artist's canvas stretcher frame

Preparation of Materials: none.

Handling of Fibers:

1. The latigo lace was wrapped around the stretcher frame to form a warp; even spacing was maintained with staples.
2. Lengths of polypropylene sliver were inserted into areas of warp with a plain weave.



Figure 17

"Shadow"



Figure 18

Detail of "Shadow"

3. Other areas of warp were wrapped with sliver.
4. Sliver was also braided and knotted in portions of the hanging.

Findings:

1. Polypropylene sliver frays and tears if it receives much handling, so working with short pieces is recommended.
2. This type of sliver is easily stretched and compacted; if it is handled wet it regains its original bulk better than cotton sliver.

Polypropylene: "Black and White"

Materials: Polypropylene roving
Nylon yarn
Stretcher frame, covered with canvas

Preparation of Materials: The roving was dampened, and some of it was dyed.

Handling of Fibers:

1. A tapestry loom was warped with the nylon yarn.
2. The roving was cut into 5" pieces which were gathered into small groups.
3. The pieces were then tied onto the warp in a row of modified rya knots (Figure 20), with the pieces going around each warp end twice instead of once.
4. Without the picks of plain weave associated with rya knotting, a second row of knots was made; here the roving was tied over three warp ends, with the roving ends pulled between the warp ends which were closest together.
5. These two kinds of rows were alternated, creating a fabric of knots which completely covered the warp.

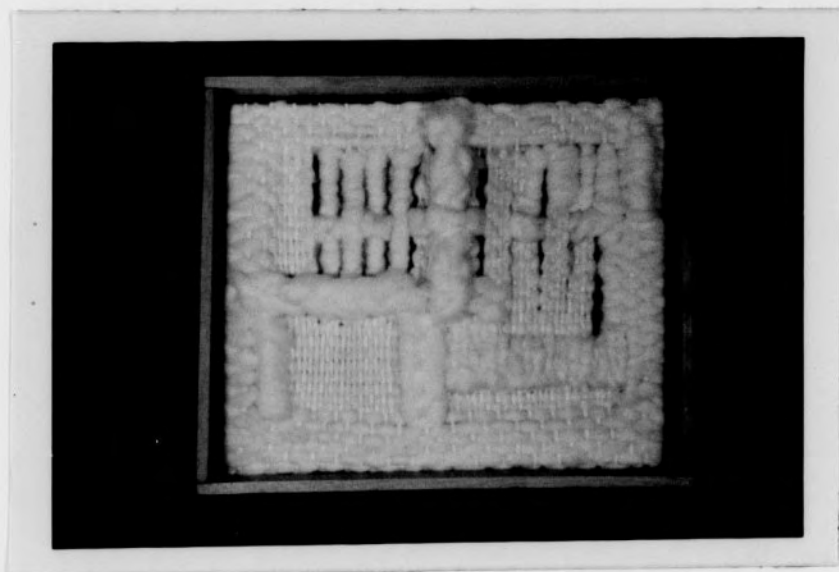


Figure 19

"Untitled, #2"

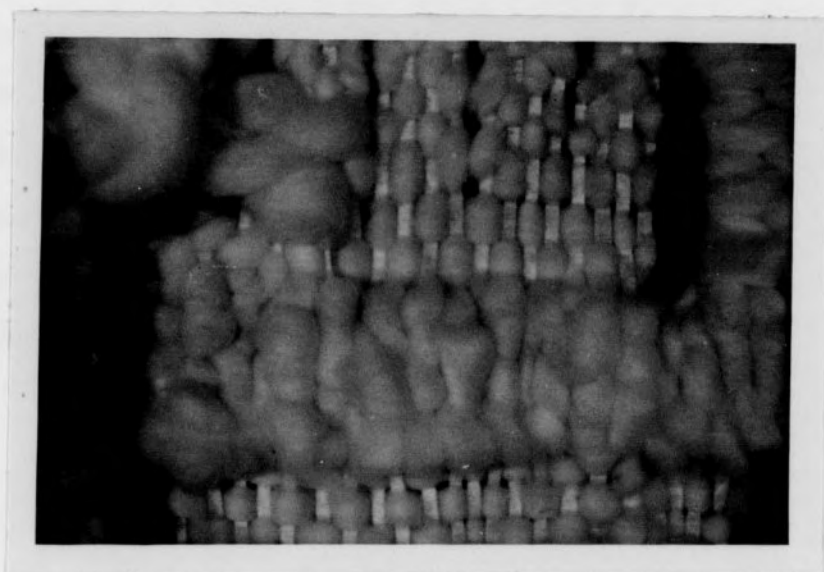


Figure 20

Detail of "Untitled, #2"

6. The hanging was then manipulated so that folds were created. After being shaped, the hanging was attached to the canvas-covered frame.

Findings:

1. Polypropylene roving can be dampened to give it strength during handling.
It regains its fluffiness when it dries.
2. Short pieces of roving (5" or less) do not tear or shed excessively during handling.
3. The modified rya technique holds roving knots in place without the traditional plain weave between rows.
4. Such knotting can also be displayed from the back, for a different textural effect.



Figure 21
Modified Rya Knots



Figure 22

"Black and White"



Figure 23

Detail of "Black and White"

CHAPTER VI

SUMMARY AND CONCLUSIONS

Today, craftsmen employ many materials in addition to yarn for wall hangings. But the unspun forms of fibers, sliver and roving, have only been used to a limited extent. This study was undertaken to explore ways that sliver and roving could be used as the principal material for wall hangings.

For the study, sliver and roving of cotton, flax, wool, yak hair, and polypropylene fibers were obtained. Traditional techniques of weaving, knotting, braiding, and wrapping were then used, and other techniques were developed, to create nine original wall hangings. Photographs were taken and records were kept for each hanging, providing information about materials, techniques, and findings.

Since most of the sliver and roving obtained lacked the strength of yarn, some attention was given to ways that the material could be strengthened. Dampening the fibers proved to be one way to strengthen them and reduce fraying during handling, although some fibers needed to be handled dry to retain their fluffiness. Felting permanently strengthened wool sliver and roving, and could be done easily in conjunction with dyeing. In addition, polypropylene was strengthened and made wavy and curly with heat, for new textural possibilities.

More attention, however, was given to how characteristics of the fibers, including their lack of strength, could be used to advantage. It was found, for

example, that torn pieces of sliver could be used to create unique pile surfaces. Also, torn ends of sliver and roving blended together well, so that new lengths could be added to braiding, knotting, etc. in progress. Strands of fibers also blended together well; any thickness of material could be obtained without the form of the strands detracting from the textures created by the weaving, knotting, braiding, or wrapping. In addition, the fibers' lightweight bulk made it possible to create deep sculptural surfaces without problems of weight. Finally, the cohesive qualities of sliver and roving make them ideal for wrapping and particular knotting techniques.

In conclusion, sliver and roving can offer craftsmen new design possibilities for wall hangings. The material can be used successfully with many techniques, such as weaving, braiding, knotting, and wrapping. Different types of sliver and roving have individual as well as shared qualities which can increase the visual and tactile appeal of contemporary hangings.

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22. Thorpe, Azalea S. and Larsen, Jack L. Elements of Weaving. Garden City, New York: Doubleday & Co., Inc., 1967.
23. Tovey, John. The Technique of Weaving. New York: Reinhold Publishing Corp., 1965.
24. Wilson, Patricia. "An Experimental Study in Weaving." Journal of Home Economics, November, 1971, pp. 619-620.
25. Znamierowski, Nell. Step-by-Step Weaving. New York: Golden Press, 1967.

CRAFT SHOWS AND WEAVING EXHIBITS ATTENDED

- A. Carolina Designer Craftsmen Fair
State Fair Grounds, Raleigh, N. C.
April 28-29, 1972
- B. Exhibit of Three-Dimensional Tapestries and Weaving by Melissa Garfinkel
The Craft Shop, Winston-Salem, N. C.
April 2, 1972 (Opening)
- C. Festival of Weaving
Wesley Foundation, Chapel Hill, N. C.
April 11-13, 1972
- D. Festival of Weaving
Wesley Foundation, Chapel Hill, N. C.
April 24-26, 1973
- E. Fibers by Jeanne Finan and Susan Angell
Garden Studio, Greensboro, N. C.
October 21 - November 4, 1973
- F. Ninth Annual Piedmont Craftsmen's Fair
Memorial Coliseum, Winston-Salem, N. C.
November 3-4, 1972
- G. Old Salem Gallery of Contemporary Art
Old Salem, Winston-Salem, N. C.
December 8, 1972 (Opening)
- H. "Poems and Fibers" Exhibition by Lorraine Force and Don Frantz
Guilford College Library, Greensboro, N. C.
March 23 - April 18, 1973
- I. Recent Tapestries by Silvia Heyden
Duke University Museum of Art, Durham, N. C.
March - May 1972
- J. Spinners and Weavers Guild Show
First-Citizens Bank, Winston-Salem, N. C.
May 21, 1972 (Opening)

K. Tenth Annual Piedmont Craftsmen's Fair
Memorial Coliseum, Winston-Salem, N. C.
November 2-3, 1973